# Periscope.

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## ANATOMY AND PHYSIOLOGY.

194. Present Methods of Preparation of the Nervous System
H. J. Berkley (Am. Jour. Insanity, 54, 1898, p. 333).

The present article gives an excellent summary of the technique which may be followed in the study of the nervous system. It is a useful and timely résumé.

195. The Intracranial Circulation in Some of its Aspects
George Elder (British Medical Journal, 2, 1897, p. 1,414).

After a number of careful experiments and a full consideration of the work of others, the author comes to the following conclusions:

1. In the unenclosed skull there are two very evident forms of pulsation of the brain—(a) the arterial, (b) the respiratory; the former produced in the arteries, the latter in the veins.
2. In the closed skull the venous side of the circulation is of the greatest importance, and respiration, acting through the veins, takes an important role in the intracranial circulation.
3. During inspiration in the open skull the aspiration of blood from the cranial veins is accompanied by compression of the vessels and retraction of the brain.
4. In the closed skull a similar withdrawal of blood from the veins occurs, accompanied by decrease in the intracranial pressure.
5. There is no flow of cerebro-spinal fluid from the spinal cavity to the intracranial cavity, either with respiratory movement or with arterial pulsation, as has usually been supposed.
6. In all probability, accompanying the emptying of the large veins during inspiration, there is dilatation of the arteries. (This may be accompanied by an increased rate of flow in the carotid artery as compared with the other arteries in the body above the level of the diaphragm, which are otherwise under somewhat similar conditions.) So, during expiration, the dilatation of the intracranial veins will be accompanied by narrowing of the arteries. The flow of blood through the capillaries will remain constant.

7. With arterial pulsation lateral pressure is exerted on the intracranial veins, leading to an increased flow of blood from the skull.

8. These movements of the veins, with respiratory movements and with arterial pulsation, will occur in the large veins leading into the intracranial venous sinuses, the walls of which are themselves incompressible.

9. Similar movements of alternating compression and dilatation of the arteries and veins probably occur also in the spinal column, the cavity of which is to be looked on as being practically closed, just as the cranial cavity is.

10. In all cases of sudden increase of pressure affecting both cranial and spinal cavities there will practically be no variation in the quantity of blood present in the cavities. There will only be either (a) a variation in the amount of blood in one side of the circulation as compared with the other, arterial at the expense of venous, or vice versa, or (b) an alteration in the rate of flow through the capillaries. In rises of pressure lasting some time there may be alteration of the quantity of blood inside the cavities, resulting from alteration in the rate of secretion or of absorption of cerebro-spinal fluid.

11. The point of importance in alterations of pressure inside the skull is the rate of flow through the capillaries. Steady flow through the capillaries—"adiæmorrhysis," as it has been called by Geigel—may go on under very low intracranial pressure or under comparatively high. (Hill.)

12. Increased intracranial pressure from an effusion into the cranium—for example, a hemorrhage—leads first of all to flow of cerebro-spinal fluid from the cranial to the spinal cavity, so giving a respite for a certain length of time to the intracranial circulation. If the effusion goes on there is, first, compression of the larger veins, which leads, after it has taken place to a certain extent, to interference with the flow of blood through the capillaries—adiæmorrhysis—and, if the pressure still rises, to actual compression of the capillaries and true anæmia of the brain.

13. When tracings are taken of the pulsations of the brain, with rise of pressure two forms of pulse wave may be seen: (1) Where wave is less ample and still anacrotic, as it is under normal conditions; (2) where wave is higher and tends to become katacrotic. The former occurs much more frequently than the latter, and seems to be present in what may be termed "passive" increase of intracranial pressure, that is, where the intracranial pressure is increased from alteration of the circulation in the rest of the body.

14. In some conditions the intracranial circulation seems to vary independently of the circulation elsewhere. This would tend to show that, although the blood vessels of the brain are not directly controlled from the general vasomotor centre, there must be some local mechanism for altering their calibre. PATRICK.

196. I REFLESSI VASCOLARE NELLE MEMBRA E NEL CERVELLO DELL' HUOMO PER VARIE STIMOLI E PER VARIE CONDIZIONI FISIOLOGICHE E SPERIMENTALI (The Vascular Reflexes of the Meninges and Brain of Man due to Various Stimuli and Various Physiological and Experimental Conditions). M. L. Patrizi (Revista Sperimentali di Freniatris, 23, 1897).

In an extended article of over eighty pages, copiously illustrated with diagrams and pulse tracings, the author presents a most elaborate and careful study, historical as well as experimental. The conclusions reached by the author are: (1) The reflexes of the blood vessels in man follow the fundamental principles of localization and